

Sadder, but Not Wiser: The Myopia of Misery

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EXTENDED ABSTRACT

Intertemporal choices, which require a decision between a sooner (usually smaller) reward and a later (usually larger) reward, are pervasive in daily life and have important consequences. Given the choice between a sooner reward and a later reward, people typically choose the sooner reward, exhibiting in economic terms irrationally high discount rates, which have been linked to a multitude of undesirable consequences including insufficient savings, drug use, and obesity.

Although emotion is often posited as the main driver for irrationally high discount rates (Bazerman and Moore 1990; Loewenstein, Read, and Baumeister 2003), no studies have tested for their causal role, except for some recent research finding that positive emotion reduces the preference for present over future outcomes (Ifcher and Zarghamee 2011; Pyone and Isen 2011). On the other hand, the appraisal-tendency framework (Lerner and Keltner 2000, 2001) posits that sadness is characterized by appraisals of experiencing irrevocable loss and thus is accompanied by action tendencies to change one's circumstances, perhaps by seeking immediate rewards (Lerner, Small, and Loewenstein 2004). Consistent with this view, research has found that individuals induced to feel sad spend more to purchase items and demand less to sell their possessions than do neutral individuals (Lerner et al. 2004). Sadness has been shown to trigger a generalized devaluation of the self (Cryder et al. 2008), which creates an implicit desire to enhance what William James (1890) called the "material self."

Three incentivized experiments randomly assigned decision-makers to emotional states to test the hypothesis that sadness, but not other negative emotions, would increase impatience in intertemporal choices. Experiment 1 induced 202 participants (57% female; ages 18 to 63) to feel neutral, sad, or disgusted using standard protocols including watching a video and writing an essay. The emotion-induction procedure was effective in both magnitude and specificity. Sad-condition participants reported feeling more sad than feeling neutral, or any other measured negative emotion, including anger and fear. Comparable specific effects were found for the neutral and disgust conditions.

Participants then made 27 choices between receiving cash today (between \$11-\$80) or more cash (between \$25-\$85) in the future, ranging from 1 week to 6 months (Kirby, Petry, and Bickel 1999). We used maximum-likelihood estimation to fit choices to an exponential discounting function, $D(t) = \delta^t$, where *smaller* values of δ (the annual discount factor) indicate more impatience. Results for hyperbolic discounting were similar. Even though induced sadness should be irrelevant to these decisions, it exerted strong, unique effects on discounting. Sadness significantly increased preference for immediate rewards. In monetary terms, whereas the median sad participant accepted \$37 today rather than wait 3 months to receive \$85, the median neutral participant required \$56 today. Importantly, disgusted participants discounted about the same as neutral participants did and less than sad participants did.

Experiment 2 applied Query Theory (Weber et al. 2007), a cognitive process model of preference construction, by asking 189 participants (70% female; ages 19 to 69) to list their thoughts before making intertemporal choices between receiving \$50 today or amounts between \$55 and \$105 (in \$5 increments) in 3 months. Par-

ticipants provided their thoughts on this choice, made their decision, and subsequently coded their thoughts on whether each one favored receiving the money now, later, both, or neither. Sad participants were again more impatient than neutral and disgusted participants, valuing \$50 in a year's time \$6.50 less. Moreover, Experiment 2 identified a mechanism for how sadness affected discounting: reasons for the immediate reward came to mind sooner and more frequently when participants had been made sad.

Experiment 3 introduced a new question. Does sadness produce a general increase in impatience or is its effect limited to choices offering an immediate payoff? A key innovation in modeling discounting distinguishes between two types of processes that are represented in the quasi-hyperbolic discounting function, $D(t) = \beta\delta^t$, for $t > 0$ (Laibson 1997; O'Donoghue and Rabin 1999). One process (δ) reflects economically rational—i.e., time-consistent—exponential discounting of rewards that is sensitive to the length of delay, t . The other process, "present bias" (β), discounts all future rewards when there is *any* delay (regardless of its length) and therefore cannot be strictly rational. We tentatively hypothesized that sadness would increase the desire to get something *now*, not just sooner, and should therefore increase present bias (β) more so than it increases time-consistent discounting (δ). Experiment 3 asked 203 participants (66.5% female, ages 19 to 68) to make 42 choices between A) immediate rewards versus later rewards; or B) later rewards versus even later rewards. As predicted, sadness resulted in greater impatience for A choices, but not B choices. Sad participants preferred immediate rewards to later rewards more strongly than neutral participants, but were no more generally impatient. That is, sad participants were more *present-biased* (Laibson 1997).

Sadness may make people wiser in some contexts (Alloy and Abramson 1979), but in our experiments, it made them more impatient, not an attribute associated with wisdom. Across three experiments, the median sad participant valued future rewards (i.e., delayed by three months) 13% to 34% less than the median neutral-state participant. Moreover, sadness increased present bias, consistent with the idea that immediate rewards can be self-bolstering.

These experiments demonstrated the causal effects of sadness on impatient intertemporal choices. For ethical reasons we could not induce high-intensity emotion. Observed effects arose from low-intensity, experimentally-induced feelings of sadness that would undoubtedly be dwarfed by the real-life sadness people may experience after the death of a loved one or after a devastating natural disaster. Strong feelings of sadness over the loss of a family member can thus be expected to show far greater effects on the many high-stake intertemporal decisions involved in settling the deceased person's estate. Sadness and depression are also common experiences for people who have been laid off. Our results suggest that such individuals might exacerbate their financial hardship by making intertemporal consumption decisions that favor immediate consumption more than is warranted or wise.

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